



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,675	07/15/2003	David Punsalan	200210251-1	9644
22879 7590 07/08/2009 HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400				
EXAMINER				
WANG, EUGENIA				
ART UNIT		PAPER NUMBER		
1795				
NOTIFICATION DATE		DELIVERY MODE		
07/08/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JERRY.SHORMA@HP.COM

ipa.mail@hp.com

jessica.l.fusek@hp.com

Office Action Summary

Application No.

10/620,675

Applicant(s)

PUNSALAN ET AL.

Examiner

EUGENIA WANG

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2009.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18, 55 and 56 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 1-18 is/are allowed.
6) ☒ Claim(s) 55 and 56 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-85/86)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. In response to the amendment received May 8, 2009:
 - a. Claims 57-67 have been cancelled as per Applicant's request. Claims 1-18, 55, and 56 are pending.
 - b. The previous objection to the specification is maintained.
 - c. The previous 112 rejection has been withdrawn in light of the amendment.
 - d. The previous double patenting rejection has been withdrawn in light of the amendment. (The changes to the claim language, specifically with respect to the porous substrate having the polymeric electrolyte deposited on the substrate including the pores, wherein the electrolyte and porous substrate are coupled to an anode, cathode, and catalyst differentiates it from previously copending application 10/705,486, now US 7,504,013.)
 - e. The previous prior art rejection has been withdrawn in light of the amendment. The changes to the claim language, specifically with respect to the porous substrate having the polymeric electrolyte deposited on the substrate including the pores, wherein the electrolyte and porous substrate are coupled to an anode, cathode, and catalyst necessitated the withdrawal of the previous prior art rejections. However, a new prior art rejection has been applied to some of the claims. The new rejection is necessitated by the amendment to the claims. Thus, the action is final.

Improper Action

2. Applicant's arguments filed May 8, 2009 have been fully considered but they are not persuasive.

Applicant argues that the reopening of a case after a decision made by the Board of Patent Appeals and Interferences must be authorized by the Director, wherein the Director refers to the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office.

Examiner respectfully disagrees. With respect to approval of reopening prosecution, please see MPEP §1214.04: "If the examiner has specific knowledge of the existence of a particular reference or references which indicate nonpatentability of any of the appealed claims as to which the examiner was reversed, he or she should submit the matter to the Technology Center (TC) Director for authorization to reopen prosecution under 37 CFR 1.198 for the purpose of entering the new rejection. See MPEP § 1002.02(c) and MPEP § 1214.07. **The TC Director's approval is placed on the action reopening prosecution.**" [emphasis added] Furthermore, Examiner directs Applicant's attention to also MPEP § 1002.02(c): "1002.02(c) [R-2] Petitions and Requests **Decided by the Technology Center Directors** 1. Petitions or **requests to reopen prosecution of patent applications** >or to reinstate a rejection< after decision by the Board of Patent Appeals and Interferences under 37 CFR 1.198, where no court action has been filed, MPEP § 1214.04 and § 1214.07." [emphasis added]. It is also noted that Mr. Mills, a Supervisory Patent Examiner of the

technology center is Acting Director of TC 1700. Accordingly, Examiner submits that the reopening of prosecution has been properly carried out.

Specification

3. The disclosure is objected to because of the following informalities: a typographical error on the last line of p6, wherein Examiner submits the word "Exmplary" should be 'Exemplary'.

Appropriate correction is required.

Response to Arguments

4. Applicant's arguments filed May 8, 2009 have been fully considered but they are not persuasive.

Applicant argues that there is no such typographical error made.

Examiner respectfully disagrees. As set forth in the objection, such a typographical error exists in the last line of page 6 (between paragraphs 0028, the last paragraph on page 6, and 0029, the first paragraph on page 7). The section noted has been copied from the Specification and is provided herein for clarity's sake.

[0028] The polymeric electrolyte solution (260) illustrated in Figure 2 may either contain charged particles (400; Fig. 4A) or charged ions (420; Fig. 4C) of the perfluorosulfonate ionomer, depending on the stage of the electrodeposition process.

Exemplary Implementation and Operation

200210251

7

[0029] Figure 3 is a block diagram illustrating an exemplary embodiment of the present method for performing electrodeposition of a polymeric electrolyte on a conductive, porous substrate using the apparatus illustrated in Figure 2. As shown in Figure 3, the electrodeposition process may begin by electrically coupling the porous, electrically conductive substrate to a negatively charged electrode (step 300). Once the negatively charged electrode and the substrate are electrically coupled, an electrophoretic deposition of charged polymeric electrolyte particles may be performed on the porous, electrically conductive substrate (step 310). After the electrophoretic deposition process, the outer surface of the substrate may optionally be post treated (a.k.a. post deposition treated) (step 320) and an electrolytic deposition process may be performed on the substrate (330). When the electrolytic deposition process is complete, the substrate may be removed from the negatively charged electrode (step 340) and implemented into a membrane/electrode assembly (MEA) (step 350). The exemplary method illustrated in Figure 3 will now be described in further detail with reference to Figures 4A, 4B, and 4C.

As seen above, the typographical error does exist within the specification as filed.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 55 and 56 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 2002-203576 (Suzuki et al.).

As to claims 55 and 56, Suzuki et al. teach of having an electrolyte film [10] with a film support body [12] that has through holes [12a] (thus constituting a porous substrate), wherein ion conductive substance [14] is introduced into the holes [12a] (abs; para 0025; para 0031; fig. 1). The electrolyte is used in a fuel cell, wherein a fuel cell necessarily consists of an electrode on each side (anode and cathode) and catalyst (para 0008; para 0052). Furthermore, it is noted that the electrolyte membrane describe is used in the fuel cell of fig. 2, wherein there is an electrolyte membrane [30] with base material [32] and breakthroughs [32a] (representative of the porous substrate and corresponding to [12] and [12a], above) and ion conducting material [34] (corresponding to [14], above) therein and is surrounded by anode [40a] with catalyst bed [44a] and cathode [40b] with catalyst bed [44b]. Lastly it is noted that the ion-conductive material [14] is embodied to be a fluorinated polymer electrolyte material (para 0039).

Alternately, it can be interpreted that the ion conducting material [14] (embodied to be polymeric), as seen in the stand alone electrolyte [10] of fig. 1, does not necessarily correspond with the material of [34] of the electrolyte [30] in the fuel cell of fig. 2. However, as noted above, Suzuki et al. do teach that known ion-conductive materials used in their invention is a fluorinated polymer electrolyte material (para 0039). Accordingly, at the very least, one of ordinary skill in the art would have found it obvious to use such embodied material within the fuel cell, wherein the use of such known ion-conducting materials would have yielded the predictable result of operating in the same manner—conducting ions in a fuel cell setting. Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was

made to use the polymeric electrolyte material as the ion-conducting material in the through holes of the fuel cell (of fig. 2), as the use of such known materials would have provided the predictable result of providing a fuel cell with an electrolyte that operated to conduct ions. Furthermore, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

In such a manner, the *structure* as claimed is met – an electrolytic material having a porous substrate and polymeric electrolyte on said substrate including in pores of the substrate, wherein the porous substrate with the electrolyte is coupled to an anode, cathode, and catalyst, wherein such an electrolyte with the anode, cathode, and catalyst pertains to a fuel cell. (Note: Having the ion-conducting material deposited within the pores of the porous substrate constitutes being on the substrate as well, as it is still in contact with a surface of the substrate and thus is on it. Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Also, limitations appearing in the specification but not recited in the claim are not read into the claim. See *In re Zletz*, 893F.2d 319, 321-22, 13 USPQ2d, 1320, 1322 (Fed. Cir. 1989).) Although Suzuki et al. do not specify the process of making such a structure including electrodeposition, such a limitation is seen as a process limitation, wherein the process of making does not serve to limit the structure of the claim.

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability

of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted).

"The Patent Office bears a lesser burden of proof in making out a case of prima facie obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. In re Fessmann, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). Ex parte Gray, 10 USPQ2d 1922 (Bd. Pat. App. & Inter. 1989). See MPEP section 2113.

Response to Arguments

6. Again, it is noted that the previous prior art rejection have been withdrawn in light of the amendment. The changes to the claim language, with respect to the method claims, specifically the electrodepositing with a porous substrate having the polymeric electrolyte deposited on the substrate including the pores, wherein the electrolyte and porous substrate are coupled to an anode, cathode, and catalyst necessitated the withdrawal of the previous prior art rejections (with respect to claims 1-18). Accordingly, all arguments with respect to claims 1-18 are moot.

Allowable Subject Matter

7. Claims 1-18 are allowed.

The following is an Examiner's statement of reasons for allowance: none of the prior art of record, alone or in combination, appear to teach, suggest, or render obvious the invention of at least claim 1.

Claim 1 teaches the method of manufacturing an electrolyte comprising the elements therein. Notably, the method includes coupling a porous substrate to a charged electrode; electrodepositing a polymeric electrolyte on said porous substrate including in pores of said substrate; and coupling said electrolyte and porous substrate to an anode, a cathode, and a catalyst.

None of the prior art pieces of record, teach, suggest, or render obvious such a method. WO 01/94668 (Furuya, using US 2003/0134177 as the English equivalent), previously relied upon does not teach such a feature. Furuya's example 9 (para 0193-0201) teach of electrophoretic deposition of a polymer electrolyte on foil (substrate, also a charged anode of the system). However, the substrate is not porous (as it is a foil), and it is also removed prior to making the fuel cell (the assembly of the electrolyte with the reaction layers) (para 0200). It is noted the foil would necessarily be removed prior to the formation of the fuel cell, because if it (foil) was left on, no porosity would be present for fuel cell function (i.e. ion transport across the electrolyte). It is noted that although Furuya recognizes that the electrolyte material can be applied to a perforated plate disposed near the anode (as well as the anode itself, which is exemplified in example 9), one of ordinary skill in the art would not have found it obvious to include the

porous substrate in an electrochemical cell assembly (with an anode, cathode, and catalyst), especially when in example 9, the substrate is necessarily removed prior to the formation of an electrochemical cell assembly. Accordingly, none of the prior art of record alone or in combination appear to teach, suggest, or render obvious the invention of claim 1. Since claims 2-18 are dependent on claim 1, they would be allowable for the same reasons as well.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **EUGENIA WANG** whose telephone number is (571)272-4942. The examiner can normally be reached on 7 - 4:30 Mon. - Thurs., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. W./
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795

/Gregory L Mills/
Acting Director of Technology Center 1700

